

REMARKS

The allowance of Claims 14, 17-18 and 20-25 is gratefully acknowledged.

At the time of filing of this reissue application, the pending claims included Claims 1-4 as the unamended claims of the original patent and new Claims 5-25. Following the entry of the above amendment this same claim status will exist.

The subject matter of all of the claims of the original application, patent, and this reissue application have been commonly owned at all relevant times. Applicants are mindful of the continuing obligation under 37 CFR §1.56 and applicants' attorney believes that all material information known to applicants and their attorney was submitted at the time of filing of this reissue application. Applicants' attorney thanks the Examiner for the return of the submittal forms which now bear the Examiner's signature and initials.

Pursuant to the requirement of 37 CFR §1.178(b) the Office is advised that there are no prior or concurrent proceedings involving U.S. Patent No. 6,706,819 except for the filing of a Certificate of Correction. A copy of this Certificate of Correction was included with the Letters Patent submitted at the time of filing of this reissue application and another copy is enclosed with this response.

Claims 11 and 15 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the phrase "said pulse sequence" was said to lack antecedent basis. Claims 11 and 15 have been amended by replacing this phrase with the phrase "said transmitted ultrasound pulses", the same language used in base Claims 5 and 14. Accordingly it is respectfully submitted that these claims now track the antecedent language of the base claims.

Claims 12, 16 and 19 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the terms of the equations were said to be undefined. The terms S and E are defined at the bottom of column 5 and the top of column 6 of the patent, and these definitions are now recited in Claims 12, 16, and 19. The term S is a sum result and the terms E_j and E_{j+1} are pulse echoes as now recited in these claims. The rest of the equations are conventional algebra. Accordingly it is respectfully submitted that Claims 12, 16, and 19 are clear and definite and supported by the specification.

Claims 1-2 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. 5,632,277 (Chapman et al.) The Chapman et al. patent application was filed on June 28,

1996. This reissue application claims the benefit of Provisional application 60/005,009, filed October 10, 1995 as seen from the sentence added at the top of column 1 of the specification above and in the enclosed Certificate of Correction signed and sealed on March 2, 1999. A copy of the '009 provisional application is also enclosed, showing support for Claims 1-2 on pages 4-7. Accordingly it is respectfully submitted that Chapman et al. is not a prior art reference for the subject matter of Claims 1-2 in this application.

Claims 5-6 were rejected under 35 U.S.C. §102(b) as being anticipated by US Pat. 5,577,505 (Brock-Fisher et al.) The Brock-Fisher et al. patent application was filed on February 6, 1996, after the date of applicants' provisional application. Accordingly it is respectfully submitted that the Brock-Fisher et al. patent should not be a reference in this case. But if the Brock-Fisher et al. patent were a proper reference, it is seen that the Brock-Fisher et al. method requires the transmit voltage to be varied from pulse to pulse. This is not necessary in an embodiment of the present invention; the transmit voltage can be left the same from pulse to pulse. This transmit voltage variation requires gain correction of the received echoes before they can be combined. If the gain correction is not precisely done, the fundamental components will not completely cancel but will contaminate the desired nonlinear (harmonic) components. In an embodiment of the present invention this is not a problem since gain correction is not necessary. Accordingly it is respectfully submitted that Claims 5-6 would be patentable over Brock-Fisher et al. if this patent were a reference in this case.

With these two patents removed as references, it is respectfully submitted that Claims 3-4, 7-10 and 13 are patentable in their present form without rewriting.

Since the pending claims after this amendment are the same as the claims originally filed in this reissue application, there has been no change to the error being corrected by the claim changes. Accordingly it is respectfully submitted that a supplemental declaration is not required for allowance of this case. If the Examiner disagrees, applicants will be happy to provide a supplemental declaration.

However, the inclusion of the priority claim at the beginning of the specification, while previously made with the Certificate of Correction, may possibly be viewed as another error which is being corrected by this application.

Accordingly a supplemental declaration is enclosed making reference to this change.

In view of the foregoing amendments and remarks it is respectfully submitted that Claims 11-12, 15-16, and 19 are clear and definite and that Chapman et al. and Brock-Fisher et al. are not references in this case. Accordingly it is respectfully requested that the rejection of Claims 11-12, 15-16, and 19 under 35 U.S.C. §112 and of Claims 1-2 and 5-6 under 35 U.S.C. §103(a) and §102(b) be withdrawn.

In light of the foregoing amendment and remarks, it is respectfully submitted that this application is now in condition for allowance. Favorable reconsideration is respectfully requested.

Respectfully submitted,

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,706,819
DATED : January 13, 1998
INVENTOR(S) : Juin-Jet Hwang, et al.

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, insert the following:

—Related U.S. Application Data
[60] Provisional application No.60/005,009 filed October 10, 1995.—

Column 1, line 2, insert the following:

—CROSS REFERENCE TO RELATED APPLICATION
Reference is made to and priority claimed from U.S. Provisional application Ser. No.
US 60/005,009, filed October 10, 1995, entitled PERFUSION MEASUREMENT USING CONTRAST AGENTS—

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,706,819

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DATED : January 13, 1998

INVENTOR(S) : Juin-Jet Hwang and David Hope-Simpson

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In col. 1, line 3 immediately following the title, insert

--This application claims the benefit of U. S. Provisional Application No. 60/005,009, filed October 10, 1995.--



Attest:

Mary A. Green

Attesting Officer

Signed and Sealed this
Second Day of March, 1999

Q. Todd Dickinson

Q. TODD DICKINSON

Acting Commissioner of Patents and Trademarks